

Application No. 10/065,866
Attorney Docket No. 129716

REMARKS

The present application includes claims 1-25. Claims 1-2, 5-7, 9-11, 13-18 and 20-25 were rejected. Claims 3-4, 8, 12 and 19 were objected to by the Examiner. Claims 1, 11 and 17 are amended in response to the Examiner's rejections. Claims 3, 4, 6, 8, 12, 17 and 19 are amended in response to Examiner's objections

Claims 6 and 17 are amended to change "based" to "base" according to the Examiner's objection.

Claims 3, 4, 8, 12 and 19 are amended to include the limitations of the base claim in accordance with the Examiner's objections and should therefore be allowable.

Claim 1 is amended to recite the limitation of a longitudinal subsystem including a rack and pinion mechanism for moving the patient positioning surface in a longitudinal direction.

Claim 11 is amended to recite maintaining a region of interest of the patient during a procedure involving movement of the patient positioning surface.

Claim 17 is amended to recite a telescopic longitudinal subsystem including a rack and pinion mechanism for moving the patient positioning surface in a longitudinal direction.

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Claims 1, 6, 17 and 22 were rejected under 35 U.S.C. § 102(b) as being anticipated by Pfleger (U.S. Patent No. 5,398,356).

Claims 1, 6, 9, 10, 17 and 20-22 were rejected under 35 U.S.C. § 102(b) as being anticipated by Sicek et al. (U.S. Patent No. 5,013,018).

Claims 1, 2, 5, 6, 9-11, 13, 15-17 and 20-25 were rejected under 35 U.S.C. § 102(b) as being anticipated by Nonaka et al. (U.S. Patent No. 6,094,760).

Claims 7, 14 and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nonaka in view of Velazquez (U.S. Patent No. 4,484,571).

The Applicant first turns to the rejection of claims 1, 6, 17 and 22 under 35 U.S.C. § 102(b) as being anticipated by Pfleger. Pfleger describes an x-ray table. Specifically, Pfleger discloses an x-ray table with a top that may be positioned in variable elevated, transverse, longitudinal, angular, and rotational positions (Abstract). The system of Pfleger allowing for longitudinal movement of the x-ray table top consists of a pair of channel members 120 fixed to the table top (FIGS. 3, 4; col. 2, lines 47-50). A series of rollers 121 are fixed to a second pair of channel members 122 (FIGS. 3, 4; col. 2, lines 48-50). The table is moved in the longitudinal direction by the channel members 122 moving on the rollers 121 mounted to the channel members 122 (FIGS. 3, 4; col. 2, lines 47-63).

Pfleger does not teach a longitudinal subsystem including a rack and pinion mechanism for moving the patient positioning surface in a longitudinal direction, as

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recited in claims 1 and 17. Conversely, as described above, Pfleger merely describes a rack and roller mechanism for movement of an x-ray table top in a longitudinal direction (FIGS. 3, 4; col. 2, lines 47-63). In this way, as Pfleger does not disclose any other type of mechanism for moving an x-ray table top in a longitudinal direction other than a rack and roller mechanism, Pfleger is therefore incapable of teaching the use of a rack and pinion mechanism for moving a patient positioning surface in a longitudinal direction, as recited in claims 1 and 17. Thus, the Applicant respectfully submits that Pfleger is incapable of teaching elements of the claimed invention.

The present rejection encompasses claims 1, 6, 17 and 22. Claims 1 and 17 are amended to recite limitations not taught by Pfleger. Claims 6 and 22 depend from claims 1 and 17, respectively. Therefore, the Applicant respectfully submits that claims 1, 6, 17 and 22 should be allowable.

The Applicant next turns to the rejection of claims 1, 6, 9, 10, 17 and 20-22 under 35 U.S.C. § 102(b) as being anticipated by Sicek. Sicek discloses table positioning for x-ray examinations in a plurality of positions. Specifically, Sicek describes a table 10 fixed to a base support 18 (FIG. 1; col. 2, lines 30-45). The base support 18 is movably mounted on four rollers resting on a rail system 16 (FIG. 1; col. 2, lines 30-45). The base support 18 (and therefore the table 10) is moveable in the longitudinal direction by activation of a drive means 17 (FIGS. 1, 3; col. 2, lines 30-45, 54-66). The drive means

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17 operates to move the base support 18 and table 10 by energizing a motor 62, thereby imparting driving motion to timing pulleys, thereby causing displacement of the base support 18 along the longitudinal direction of the rail system 16 (FIGS. 1, 3; col. 2, lines 54-66). In this way, Sicek describes a motor and pulley mechanism to move a base (and therefore also a table attached to the base) in a longitudinal direction. Sicek does not disclose any other type of mechanism or system for longitudinal movement of a table.

Sicek does not teach a longitudinal subsystem including a rack and pinion mechanism for moving the patient positioning surface in a longitudinal direction, as recited in claims 1 and 17. Conversely, as described above, Sicek merely describes a motor and pulley mechanism for movement of an x-ray table top in a longitudinal direction (FIGS. 1, 3; col. 2, lines 30-45, 54-66). In this way, as Sicek does not disclose any other type of mechanism other than a motor and pulley mechanism for moving an x-ray table top in a longitudinal direction, Sicek is therefore incapable of teaching the use of a rack and pinion mechanism for moving a patient positioning surface in a longitudinal direction, as recited in claims 1 and 17. Thus, the Applicant respectfully submits that Sicek is incapable of teaching elements of the claimed invention.

The present rejection encompasses claims 1, 6, 9, 10, 17 and 20-22. Claims 1 and 17 are amended to recite limitations not taught by Sicek. Claims 6, 9, 10, and 20-22 depend from claims 1 and 17. Therefore, the Applicant respectfully submits that claims 1, 6, 9, 10, 17 and 20-22 should be allowable.

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The Applicant next turns to the rejection of claims 1, 2, 5, 6, 9-11, 13, 15-17 and 20-25 under 35 U.S.C. § 102(b) as being anticipated by Nonaka. Nonaka describes a bed system for radiation therapy. Specifically, Nonaka discloses a rotation drive mechanism in a treatment bed system providing for rotation about three independent axes and for transfer along three independent directions (Abstract). Nonaka describes a longitudinal transfer mechanism 50 for moving a bed 20 in the longitudinal direction (FIG. 5; col. 9, lines 66-67; col. 10, lines 1-8). The longitudinal transfer mechanism 50 consists of an electric motor 56 and torque limiter 57 (FIGS. 6, 7; col. 9, lines 66-67; col. 10, lines 1-8). A feed screw 58 is connected to a nut 59 fixed to the bed platform 54 (FIGS. 6, 7; col. 9, lines 66-67; col. 10, lines 1-8). The motor 56 drives the feed screw 58 in order to move the bed platform 54 in the longitudinal direction (FIGS. 6, 7; col. 9, lines 66-67; col. 10, lines 1-8). In this way, Nonaka describes a motor and feed screw mechanism for moving a bed platform in the longitudinal direction.

Conversely, Nonaka does not teach a longitudinal subsystem including a rack and pinion mechanism for moving the patient positioning surface in a longitudinal direction, as recited in claims 1 and 17. Conversely, as described above, Nonaka merely describes a motor and feed screw mechanism for movement of bed platform in a longitudinal direction (FIGS. 6, 7; col. 9, lines 66-67; col. 10, lines 1-8). In this way, as Nonaka does not disclose any other type of mechanism other than a motor and feed screw mechanism for moving bed platform in a longitudinal direction, Nonaka is therefore incapable of

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teaching the use of a rack and pinion mechanism for moving a patient positioning surface in a longitudinal direction, as recited in claims 1 and 17. Thus, the Applicant respectfully submits that Nonaka is incapable of teaching elements of the claimed invention.

Nonaka also discloses the correction of displacement of a bed platform caused by the mass of a patient lying down on the bed platform (col. 12, lines 63-67; col. 13, lines 1-18). Thus, the bed disclosed in Nonaka is intended to be rigid at all times by compensating for any displacement of the bed caused by a patient's mass or act of breathing (col. 12, lines 63-67; col. 13, lines 1-18). The amount of distortion caused by a patient lying down on the bed is calculated and corrected for once the patient actually lies on the bed (col. 12, lines 63-67; col. 13, lines 1-18). Furthermore, once a patient is on the bed 20, an acceleration sensor 26 detects acceleration in any one of three mutually perpendicular axes during therapy caused by a patient's respiration (col. 12, lines 63-67; col. 13, lines 1-18). When acceleration is detected, vibration signals opposite in direction and equal in amplitude of the detected acceleration are added to each of the three mutually perpendicular axes "to hold the position of diseased part of a patient stationary." (col. 12, lines 63-67; col. 13, lines 1-18). In this way, Nonaka describes the correction of a bed's acceleration in order to maintain a rigid, still surface for patient examination. That is, Nonaka merely describes the correction of slight, unintentional movements of the bed to provide a rigidly still surface.

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Conversely, Nonaka does not teach maintaining a region of interest of the patient during a procedure involving movement of the patient positioning surface, as recited in claim 11. In addition, Nonaka does not teach a table for positioning a patient where a region of interest of the patient is maintained in an image area during tilt, as recited in claim 25. Instead, as described above, Nonaka discloses the correction of any acceleration of a bed along three mutually perpendicular axes in order to maintain a rigidly still surface during examination (col. 12, lines 63-67; col. 13, lines 1-18). In this way, the bed of Nonaka is limited to no other movement other than for correction of a patient's mass on the bed or a patient's respiration (col. 12, lines 63-67; col. 13, lines 1-18). Conversely, claims 11 and 25 recite maintaining a region of interest of the patient during tilt or during a procedure involving movement of the patient positioning surface. Thus, the claims recite maintaining the region of interest during intentional movement of the patient positioning surface, while Nonaka corrects for unintentional movement of a surface. Thus, Nonaka does not teach elements of the claimed invention.

The present rejection encompasses claims 1, 2, 5, 6, 9-11, 13, 15-17, and 20-25. Claims 1, 11 and 17 are amended to recite limitations not taught by Nonaka. Claim 25 is respectfully submitted to recite elements not taught by Nonaka. Claims 2, 5, 6, 9-10, 13, 15-16, and 20-24 depend from claims 1, 11 and 17. Therefore, the Applicant respectfully submits that claims 1, 2, 5, 6, 9-11, 13, 15-17, and 20-25 should be allowable.

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The Applicant next turns to the rejection of claims 7, 14 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Nonaka in view of Velazquez. Velazquez describes a patient security and restraint system. Specifically, Velazquez discloses a strap set 12; 14 to securely fasten a patient 13 to an x-ray assembly cradle 11 (FIG. 2; col. 3, lines 34-39). Velazquez also describes an x-ray assembly consisting of a base 3 with an elevator portion 5 allowing for vertical movement (FIG. 2; col. 3, lines 17-21) and an intermediate support 7 mounted on the elevator portion 5 allowing for longitudinal movement (FIG. 2; col. 3, lines 21-24).

However, Velazquez does not remedy the shortcomings of Nonaka, as described above. First, neither Velazquez nor Nonaka, alone or in combination, teach or suggest a longitudinal subsystem including a rack and pinion mechanism for moving a patient positioning surface in a longitudinal direction, as recited in claims 1 and 17. Conversely, Velazquez merely describes an intermediate support 7 mounted on the elevator portion 5 allowing for longitudinal movement (FIG. 2; col. 3, lines 21-24). In this way, Velazquez does not teach or suggest any rack and pinion mechanism, for longitudinal movement or otherwise. Furthermore, as set forth above, Nonaka merely describes a motor and feed screw mechanism for movement of bed platform in a longitudinal direction (FIGS. 6, 7; col. 9, lines 66-67; col. 10, lines 1-8). Nonaka does not teach or suggest any other type of mechanism for moving a bed platform in a longitudinal direction. Therefore, neither Velazquez nor Nonaka teach or suggest a longitudinal subsystem including a rack and

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pinion mechanism for moving a patient positioning surface in a longitudinal direction, as recited in claims 1 and 17.

Next, neither Velazquez nor Nonaka, alone or in combination, teach or suggest maintaining a region of interest of the patient during a procedure involving movement of the patient positioning surface, as recited in claim 11. Conversely, Velazquez merely describes a strap set 12, 14 to securely fasten a patient 13 to an x-ray assembly cradle 11 (FIG. 2; col. 3, lines 34-39). In this way, Velazquez does not teach or suggest maintaining any region of interest, whether during a procedure involving movement or otherwise. Furthermore, as set forth above, Nonaka merely describes the correction of any acceleration of a bed along three mutually perpendicular axes in order to maintain a rigidly still surface during examination (col. 12, lines 63-67; col. 13, lines 1-18). In this way, the bed of Nonaka is limited to no other movement other than for correction of a patient's mass on the bed or a patient's respiration (col. 12, lines 63-67; col. 13, lines 1-18). Nonaka does not teach or suggest maintaining a region of interest during a procedure involving movement of a patient positioning surface. Therefore, neither Velazquez nor Nonaka teach or suggest maintaining a region of interest of the patient during a procedure involving movement of the patient positioning surface, as recited in claim 11.

Furthermore, assuming for the sake of argument that one would combine Velazquez and Nonaka, the combination would not teach or suggest elements of the claimed invention. As set forth above, neither Velazquez nor Nonaka teach or suggest a

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longitudinal subsystem including a rack and pinion mechanism for moving a patient positioning surface in a longitudinal direction, as recited in claims 1 and 17. In addition, also as set forth above, neither Velazquez nor Nonaka teach or suggest maintaining a region of interest during a procedure involving movement of a patient positioning surface, as recited in claim 11. Therefore, a combination of Velazquez and Nonaka is respectfully submitted to not teach or suggest elements of the claimed invention.

The present rejection encompasses claims 7, 14 and 18. Claims 1, 11 and 17 have been amended to recite limitations not taught or suggested by Velazquez or Nonaka, alone or in combination. Claims 7, 14 and 18 depend from claims 1, 11 and 17, respectfully. Therefore, the Applicant respectfully submits that claims 7, 14 and 18 should be allowable.

Therefore, the Applicant respectfully submits that the claims of the present application should be allowable over the prior art.

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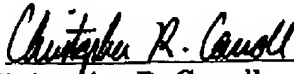
CONCLUSION

The Applicant respectfully submits that the claims of the present invention should be in condition for allowance. If the Examiner has any questions or the Applicant can be of any assistance, the Examiner is invited and encouraged to contact the Applicant at the number below.

The Commissioner is authorized to charge any necessary fees or credit any overpayment to the Deposit Account of GTC, Account No. 07-0845.

Respectfully submitted,

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